

REMARKS

I. IN THE OFFICE ACTION

The Examiner rejected claims 1-23 under the provisions of 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent No. 6,178,980 B1 issued to Storm ("Storm") in combination with U.S. Patent No. 6,015,779 issued to Eaton et al. ("Eaton '779") or U.S. Patent No. 5,869,570 issued to Eaton et al. ("Eaton '570"). The Examiner states that Storm discloses a method of reducing the viscosity of a heavy oil flowing through a pipe which comprises mixing heavy oil, water in an amount of 1-10% by volume, and an effective amount of a C₁ to C₁₀ alcohol such as 1-propanol, 1-butanol, 1-pentanol, 1-hexanol, 1-heptanol, or mixtures thereof. Office Action, page 2. The Examiner states that the alcohol component of Storm meets the limitation of an alfol alcohol of Applicant's invention, and that Strom teaches that the mixture may further include a polymeric drag reducing agent in a concentration from about 1 to about 10,000 ppm. *Id.*

With respect to Eaton, the Examiner states that Eaton discloses polyalphaolefin drag reducing components that meet the claim limitations for forming polyalphaolefin components, and states that the motivation to combine the disclosure of Storm with the disclosure of Eaton is the teaching in column 8 of Storm allowing for the addition of a polymeric drag reducing agent in a concentration of from about 1 to about 10,000 ppm. Office Action, page 3.

The Examiner then states that "Applicants' open-ended claim language "comprising" allows of the addition of other additives to the compositions including the heavy oil and water of Storm

Office Action, page 4.

II. DISCUSSION

A. Claim Rejections - 35 U.S.C. § 103

Identification in the prior art of each individual part claimed in a patent is insufficient to defeat patentability of the whole claimed invention. *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000); *In re Rouffett*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by applicant. *In re Kotzab*, 217 F.3d at 1370. Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. *Id.* The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved. *Id.* In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. *Id.* The test for an implicitly showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. *Id.* Whether the Board of Patent Appeals and Interferences relies upon an express or an implicit showing, it must provide particular findings related thereto. *Id.* Broad conclusory statements

standing alone are not “evidence.” *Id.* (quotes in the original).

Applicant respectfully disagrees with the Examiner’s reasons for rejection of claims 1-23 as allegedly being obvious over Strom in view of Eaton ‘779 or Eaton ‘570 for the reasons set forth in Applicant’s Amendment filed April 3, 2003. As set forth therein, Applicant noted that Storm is not directed to drag reducing agent slurries, but instead is directed to modifying the viscosity of heavy oil in a pipeline by mixing the heavy oil with water and alcohol and then injecting this mixture through the pipeline. As further stated therein, there is no motivation to combine the teachings of Storm with the teachings of Eaton ‘779 or Eaton ‘570. Despite the differences and lack of motivation, Applicant submits herein amended claims 1-23 in an effort to move this application to issue.

B. Amended Claims 1-23

Amended claims 1-23 recite that the drag reducing agent slurries recited therein are “nonaqueous.” This amendment is supported by the specification at page 4, lines 13-25 and at the discussion of “alfol alcohols” at page 11, lines 21-29 which discuss, respectively, the preference for an absence of water as part of the suspending material and the insolubility of the alfol alcohol in water.

Amended claims 1-23 also recite that the polyalphaolefin is “cryoground.” Support for this amendment is found at page 7, lines 4-6 and page 11, lines 3-15.

Storm does not render any of amended claims 1-23 obvious, either alone or in combination

with Eaton '779 or Eaton '570, because Storm does not disclose any process for forming drag reducing agent slurries or any drag reducing agent slurries lacking water. To the contrary, the addition of water is an important component of the "mixture" disclosed and taught by Storm. As pointed out in Applicant's previous Amendment, Storm discloses a process of reducing the viscosity of heavy crude oil flowing through the pipeline by mixing the heavy crude oil *with water* and alcohol. The objective of Storm is a method of reducing the viscosity of heavy crude oil using water and alcohol instead of by heating the heavy oil (Col. 1, lines 34-53), diluting the heavy oil (Col. 1, lines 54-67), or mixing the heavy oil with water/surfactant mixtures (Col. 2, lines 1-44). Moreover, Storm states that the objective of Storm is to reduce the viscosity of the heavy crude oil flowing through a pipeline by forming an oil/water/alcohol mixture having a flow rate that is sufficiently turbulent so that commercial drag reducing agents may then be injected into the pipeline to reduce the friction, and increase the flow, of the oil/water/alcohol mixture. Col. 2, lines 55-67.

Furthermore, in seeking its objective of reducing the viscosity of heavy oil, Storm teaches modifying the viscosity of oil by forming an oil/water/alcohol mixture with water being present in the oil/water/alcohol mixture at a range from 1% by volume to 50% by volume (Col. 3, lines 47-50), and alcohol being present in the oil/water/alcohol at a range from 1% by volume to 10% by volume (Col. 3, lines 53-57). No other materials are added to the oil/water/alcohol, therefore, the heavy oil is present in the oil/water/alcohol at a range from to 40% by volume to 98% by volume. See Col. 3, lines 30-57. Therefore, Storm is directed to the modification of heavy oil viscosity through the

use of significant volumes of *water* and alcohol.

The result of mixing the heavy oil with water and alcohol to form the oil/water/alcohol mixtures disclosed, taught, and suggested in Storm is the formation of an emulsified liquid with water as the external phase of these mixtures and small globules of heavy oil as the internal phase of these mixtures with the alcohol acting as an emulsifying or stabilizing agent. The result is a bulk viscosity of the heavy oil/water/alcohol mixtures that is reduced. Therefore, Storm teaches and suggests water based heavy crude oil viscosity reducing materials.

As for the addition of “polymeric drag reducing agents,” Storm is silent as to the preparation of the polymeric drag reducing agent.

While Eaton ‘779 and Eaton ‘570 are both directed to drag reducing agents having polyalphaolefins, neither Eaton ‘779 or Eaton ‘570 disclose, teach or suggest cryogrinding the polyalphaolefin. Nor do either Eaton ‘779 or Eaton ‘570 disclose, teach or suggest alcohol suspending materials.

On the other hand, the drag reducing agent slurries recited in the amended claims are “nonaqueous” and, thus, lack water. Additionally, the polyalphaolefin of the drag reducing agents recited in the amended claims is “cryoground.” Because (1) Storm discloses the importance of the inclusion of water in the heavy crude oil viscosity reducing materials of Storm; and (2) neither Storm, Eaton ‘779 nor Eaton ‘570 disclose cryogrinding of the “polymeric drag reducing agents,” Applicant respectfully submits that amended claims 1-23 are not rendered obvious over Storm, either

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alone or in combination with, Eaton '779 or Eaton '570.

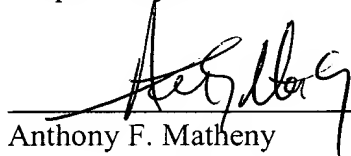
Accordingly, Applicant respectfully submits that amended claims 1-23 are patentable over Storm, either alone or in combination with Eaton '779 or Eaton '570, and respectfully requests that the rejection of amended claims 1-23 under the provisions of 35 U.S.C. § 103(a) be withdrawn.

III. CONCLUSION

In view of the above remarks, Applicant respectfully requests the amendments to the claims be entered, the rejection of claims 1-23 be withdrawn, and a notice allowance with respect to claims 1-23 be issued. In order to expedite the examination of this application, Applicant requests the Examiner to contact the undersigned at (713) 220-4168 to discuss any matters that can be resolved by telephone.

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Respectfully submitted,



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